DOCUMENT RESUME

ED 174 302 PS 010 494

AUTHOR	Singer, Dorothy G.; Singer, Jerome L.
TITLE	Some Correlates of Imaginative Play in Preschoolers.
SPONS AGENCY	National Science Foundation, Washington, D.C.
PUB DATE	Aug 78
GRANT	NSF-DAR-6-20772
NOTE	16p.; Paper presented at the Annual Meeting of the American Psychological Association (86th, Toronto, Canada, August 28-September 1, 1978)
EDRS PRICE	MF01 Plus Postage. PC Not Available from EDRS.
DESCRIPTORS	Field Studies; Imagination; Language Development; *Preschool Children; *Pretend Play; Research; *Social Behavior; *Television Research; *Television Viewing

ABSTRACT

This study examined the ways in which the spontaneous imaginative play and other social behaviors of 3- and 4-year-old children are affected by the frequency and patterns of their television viewing. The subjects were 141 children from predominantly white middle class homes. Pretesting was done to get an estimate of IQ (Peabody Picture Vocabulary Test), an estimate of imaginative predisposition (Barron Movement Threshold Inkblot Series), information regarding imaginative play tendencies (Interview on Imaginative Play), and information regarding favorite television shows, favorite television characters, and viewing patterns (Television Viewing Patterns). Data on the children's naturally occurring play were obtained through unobtrusive observations in their nursery schools and day care centers eight times over a 1-year period. The children's language was recorded verbatim and was coded by trained raters. Logs of the children's television viewing were maintained by parents and returned weekly during each of four 2-week probe periods. Results indicated that children who watch a good deal of television, especially action shows, seem more likely to show aggressive behavior during play. Indications of private fantasy play such as imaginative companions or inner imagery appear to be linked to more socially mature behavior, to less aggression or anger, and to lower levels of viewing television, especially more violent programming. (JMB)

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Some Correlates of Imaginative Play in Preschoolers

Dorothy G. Singer and Jerome L. Singer

University of Bridgeport and Yale University

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American Psychological Association

Toronto, Canada, August 1978

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This work was supported by the National Science Foundation Grant No. DAR 6-20772/ formerly APR.

Symposium: Imaginative Play in Childhood: Cognitive, Affective, Linguistic and Clinical Implications

The Research Problem

The research project described herein represents an attempt to study the ways in which the frequency and patterns of television-viewing by 3- and 4-year-old children become influential in their spontaneous imaginative play and in other forms of social behavior observable during a period of at least a year of repeated behavior samples in nursery school or day care settings.

It seeks to examine the relationship between a particular diet of television viewing which a child manifests within its family setting and the ways in which such exposure to the medium may become expressed in the major activity the child shows during his third to fifth years of life - its ongoing patterns of spontaneous play and imaginative activity. The study has, therefore, been following samples of children three and four years of age for a year, tracking early language development, the beginnings of imaginative play, and also relating such behaviors which have been unobtrusively observed to the frequency and patterning of the same children's television viewing as recorded in a series of television log-keeping periods by their parents. The extent to which the specific influences of the child's natural-occurring TV viewing have been incorporated into prosocial or destructive behavior manifested by the child can be evaluated through systematic monitoring of spontaneous solitary or group play.

Participant Sample:

There were 141 children who served as the subjects of this investigation. They were enrolled in eight nursery schools or daycare centers within the New Haven area, largely within city limits. Since there was a one year observation period of these children, a number of the four-year olds moved on to kindergarten, private and public, and in some instances, some of the three-year olds transferred to other nursery schools or daycare centers. Thus, by the conclusion of the observation period in the Spring semester of 1978, children were observed in 49 separate schools.

In general, the subjects are somewhat above average in intelligence, are drawn from a clearly middle-class sample although there is a sufficient range of lower-middle and upper-lower class subjects to provide meaningful statistical data; while the sample is predominantly white, there is representation of minorities sufficient to provide statistical analyses.

Pre-Testing:

The following instruments were used in carrying out pre-testing with children in the study prior to the unobtrusive observations of the first probe:

1. Peabody Picture Vocabulary Test (PPVT) - IQ estimate
2. Barron Movement Threshold Inkblot Series - Estimate of imaginative pre-disposition
3. Interview on Imaginative Play (IIP) - Direct questioning of children concerning imaginative play tendencies, imaginary companions, etc.
4. Television-Viewing Patterns - Direct questioning of child on favorite television shows and characters on TV as well as pattern of viewing

Observational Variables:

The basic data of this study with respect to the natural occurring play of the children were obtained by watching children play in nursery school and daycare centers in an unobtrusive fashion. A pair of trained observers watched a given child for a ten-minute period and wrote down everything the child did and said during this time. The child was almost always in a "free play" period, ordinarily early in the nursery school day or in the period following lunch. Following their independent recording of the child behavior, the observers, without consultation, rated the child's behavior along 14 dimensions which included Imaginativeness of Play, Positive Emotion or Affect, degree of Concentration, Overt Aggression, etc. The use of the separate raters

allowed us to establish the degree of agreement between the raters on the observation of a particular child. A few days later, the child was again observed for a ten-minute period of time by two independent raters and comparable ratings obtained. For subsequent statistical analyses, the average of the rating of a child by the two observers was employed as the child's score for that observation period.

The scores used in the study were based on the behavioral variables rated from these protocols as well as the actual language employed by the child which had been recorded verbatim by the observers. Scoring of the language was carried out from the written protocols by trained raters. Since this was a much more time consuming task and involved some months of going through the hundreds of records, separate raters with special training in language identification were employed.

The observational variables fall into several classes. These involve overt behavior such as Imaginativeness of Play, Degree of Concentration or Persistence and Overt Agression, the pattern of social interaction shown by the child as measured by Interaction with Peers and Interaction with Adults. Cooperation with Adults and Cooperation with Peers were separate categories implying a process of sharing rather than simply communicating by word of gesture or participating in the same activity. Finally, there were a group of variables which attempted to tap the emotions or moods of the children as they played. A general variable called Positive Affect or Emotion was employed in addition to specific emotions including Anger, Sadness, Fatigue, Liveliness and Elation. It is important to note that these variables were rated as much as possible on the basis of actual overt behavior manifested by the child in the form of gross physical movements, facial expression or added verbalization which could clarify the motor behavior of the child. Thus, Positive Affect was represented by

evidence of interest, curiosity, smiling and laughing. Overt Aggression was measured by evidence of direct attacks on other children or on property.

Language Variables:

As indicated above, language recorded verbatim was scored from the children's protocols. The number of utterances and words spoken in the ten-minute observational sample served as basic information and scores for Mean Length of Utterances, percent of Nouns, Pronouns, Adjectives, etc. were calculated from the protocol. More complex forms, e.g. Predicate Adjectives, Predicate Nominatives, Percent Future Verbs, etc. were also included. Onomatopeia, Imperatives, and Television references were also scored.

Television-Viewing Logs and Variables:

The TV logs were maintained quite faithfully by parents and returned weekly during each of the four two-week probe periods in February 1977, April 1977, October 1977 and February 1978. Since there were many changes in programming parents wrote in actual shows viewed when the schedules provided them did not conform to what actually was being aired. Parents recorded actual amount of time a child watched a given show, the degree of Intensity (that is observation without distractibility), whether the child watched alone or with others, etc.

The major TV variables drawn from analysis of these protocols included:

Ave. No. of Weekly hours of viewing (Based on mean of two weeks of logs)

Ave. No. of Weekday hours of viewing

Ave. No. of Weekend hours of viewing

Ave. Intensity of Viewing

Program Categories: Cartoons, Commercial TV Children's Shows, Public Television Children's Shows (e.g. Sesame Street); Family Situation Comedies

(Happy Days, I Love Lucy); Variety and Game Shows (Gong Show, Donny & Marie); Adult Family Dramas (Waltons, House on the Prairie); Action-Detective Shows (Kojak, Starsky & Hutch, Police Woman, Bionic Man, etc.); Sportscasts and News Broadcasts.

Comparisons of data with Nielsen ratings for the local area were carried out as a check on group patterns.

RESULTS

In presenting the results, we shall focus upon a series of specific questions that can arise about early childhood play, its relationship to language and television-viewing patterns. We will take into account, of course, the fact that some of the children were three at the beginning of the study and others four, so that we have data to look at in the year's growth of the three-year olds compared with the four-year olds. Similarly, we can compare the differences in play patterns across sexes as well. We will also be able to look at a number of questions that have been important in general in personality theory in psychology as well as issues relating to the nature of the television medium and its impact on three- and four-year olds.

When do TV-viewing patterns emerge in children?

An important initial assumption of this study needs to be repeated. It was our feeling in choosing children who were approximately three- and four-years old at the outset of the study, that these ages represented the beginnings of television-viewing. A major outcome of our study so far makes it clear that this assumption is simply incorrect in the light of current trends in television watching. Our three- (and in some instances two-and-a-half-year olds) and four-year olds were experienced viewers according to parental reports and quite obviously in terms of the total amount of viewing carried on. While, of course, the predominant types of programming they watched were child-oriented shows, the

fact remains that the range of programming viewed by these children, some of them barely beyond the toddler stage, included every type of programming available before midnight to the television audience.

While it is true that Mr. Rogers' Neighborhood and Sesame Street were more extensively viewed by the younger children than most other shows, and that cartoons predominated, the fact remains that a very sizable proportion of the viewing time of our sample over the year of observation was devoted to essentially adult programming. We will deal with this issue further below, but it requires mention at the outset because it relates to critical issues currently before the public concerning hours of viewing accessible to children and whether regulation of programming or commercials at certain periods will be effective in reducing drastically children's exposure to a predominantly adult type of program or commercial format.

Evaluation of the Reliability of Raters:

In attempting to study something such as the normal flow of behavior, a number of critical questions first arise about whether we can, through the use of human observers, gather sufficiently systematic information. An initial question that researchers must ask is whether the two observers independently recording what the children do are actually "seeing" the same events and hearing the same language, or indeed, if they are able to then draw from such observations comparable subclassifications of this behavior along particular dimensions. This issue, that of rater reliability raises an important consideration that must be dealt with. In our research, we have attempted, first of all, to define our behavioral dimensions fairly precisely in advance. We have trained groups of observers, themselves unfamiliar with the overall plan of the study or the specifi research questions and hypotheses, to agree in recording and summarizing behavior

from written protocols and then from movies of children playing.

In general, the results make it clear that training is effective in leading to reasonable degrees of agreement on most variables of the study using a fairly sophisticated statistical method that is rather stringent for assessing this agreement. When the observers moved to actual field situations with the real children in front of them rather than written protocols, their levels of agreement increased considerably and are on the whole, quite satisfactory.

How Consistent are Children in their Spontaneous Play Behavior?

An extremely important issue in our research with pre-schoolers involves the extent to which they show sufficient consistency in their day-to-day behavior. In the late 60's and during much of the 1970's, a major controversy has raged in the area of Personality Psychology concerning the degree to which certain personality traits showed consistency across varying situations or across time periods. The present study provides an opportunity to contribute evidence concerning consistencies in spontaneously-occurring behavior across time for three- and four-year old children. Such data are otherwise relatively unavailable in the literature since most studies of behavioral consistency have been carried out over relatively short time periods, or in the case of longitudinal studies, have begun with older children and have involved much longer time gaps.

Given all of these possible influences, we cannot seriously expect extremely high consistency across a couple of days or systematically across a year's time in the children. Nevertheless, because of the fact that we have in effect 8 data points, two apiece in each of the 4 probes, each independent of the other in the sense that they are taken on different days (and as a matter of fact by different observers) it is worth examining whether we can demonstrate any degree

of consistency better than chance in the behavior of these children along the dimensions employed in the research.

In general, the results of intercorrelating scores for all time combinations of a given variable, e.g. Imaginativeness of Play, at Time 1 with Time 2 etc. (representing all independent observation periods) yields a matrix for each variable that defines the degree of significant correlations possible. These matrices indicate considerable consistency across time. Thus 100 percent of all possible correleations for Imaginativeness are significant at $P<.01$ with an average R of .385, $P<.001$. Most of the behavioral variables revealed comparable consistencies. Indeed even Agression shows consistency of .30, $P<.001$ between the first two and last two observations.

Imaginary Playmates and Overt Behavior of Language Development in the Pre-Schooler

In response to a questionnaire mailed to parents it was possible to develop a number of measures concerning the nature and pattern of imaginary companions in our three- and four-year old children. Fifty-five percent of the parents reported that their children had imaginary companions. In response to direct inquiry of the children themselves, 65% had indicated that they had some form of imaginary playmate. This discrepancy is in the expected direction since presumably parents would not be privy to all of the possibilities of children having private fantasy companions.

Children without siblings, as might be expected, show significantly more imaginary playmates (Chi Square (1) = 7.166, $p<.01$). The result is even more striking in the case of girls. In general, children whose parents reported them as having more imaginary playmates at home also showed more imaginativeness in their spontaneous play, more positive emotionality during this play and somewhat

more cooperative behavior with adults in the nursery school setting. Children who had imaginary playmates at home were also much more likely to show more extended language usage during spontaneous play. They also turned out to be watching significantly less television. This result is one of the indications we had supporting the more general hypothesis of this research which had proposed that a more developed imaginativeness in the pre-school child would lead to less resort to watching television.

In summary, our data indicate that three- and four-year old children who, according to parental report, are playing with imaginary companions, turn out in their overt observable behavior during nursery school to be more imaginative on the whole, more inclined to be cooperative, to show more generally positive emotionality, and also are less likely to evince aggressive behavior or negative emotions such as sadness. They also seem more likely to be using more words and to be less likely to be extensive watchers of television. These findings do support the original hypothesis of this investigation.

Imaginativeness of Play in the Nursery School Setting:

As indicated above, the likelihood that a child would be scored as showing imaginative play turned out to be one of the most consistent behavioral variables. In other words, the child who by three or four years of age is showing spontaneous play that includes introduction of make-believe elements, is likely to continue to show such behavior over the years' time. Thus, a tendency towards make-believe as a part of a play pattern has already been established in quite a number of children by the third year of life. The tendency to play imaginatively is also closely linked with ratings by observers of more positive emotionality and indications of joy in the child. The correlation between Imaginative Play and Positive Affect over the years' time in boys is .666 and for girls it is .522.

The correlation between Imaginativeness of Play and indications of Persistence or Concentration are .393 for boys and .417 for girls. If we keep in mind that Concentration is one of the least reliable of our variables, this level of correlation is even more impressive. Children who reflect imaginativeness of play also turn out to be more likely to interact with peers and to share with peers. Correlations, again, are quite high and significant. The same pattern shows up for the emotional variables with Imaginativeness of Play negatively related to evidences of Fearfulness and Sadness or Fatigue and positively related to measures of Liveliness or Elation. Children who play more imaginatively are also more inclined to use more words, to make more direct utterances, and to show a higher Mean Length of Utterance. They are more likely to use more complex grammatical constructions such as Predicate Nominatives and to make more use of Future Verbs.

It might be argued that the correlation of Imaginative Play and Positive Emotion might simply be a function of the fact that children who speak a great deal will evoke more positive ratings from observers and also that the score of Imagination depends to some extent on the use of language. Thus, it could be argued that the relationship of Imagination to other variables may be part of a general verbal expressiveness. As it happens, when we correlate Imagination and Affect, partialing out the correlation between each of these variables and the number of words spoken, the correlation of .67 between Imagination and Affect drops only to .53, ($p < .001$). Thus, the effect of eliminating the impact of the verbal productivity does not make a really major difference in the occurrence of a positive correlation between Imagination and Positive Affect.

Another issue that might be raised is the extent to which IQ may be a controlling variable and that imaginativeness and verbal expressiveness may be both reflections of the general intelligence of the child. The correlation between

imaginativeness and number of words spoken during a ten-minute play period averaged across the entire year for boys is .64. When the effect of IQ is partialed out, we still obtain a highly significant correlation of .63. In the case of girls, the correlation between Imaginativeness of Play and number of words used is .64 and with IQ partialed out, is still an impressive .59.

Of interest, also, is the fact that Imaginativeness of Play is also associated with somewhat more complex language usage such as the use of forms such as the predicate nominative, the beginning of metaphoric language use, and also the use of future verbs as parts of speech in the children's language. It might be argued again that in order to rate Imaginativeness of Play we must count to some extent on the occurrence of certain parts of speech to help us understand what the children are doing. The fact remains that in our data we find evidence that Imaginativeness of Play during one probe period can predict the likely occurrence of Future Verbs in the next probe period.

What seems more likely to be active here is not a simple cause-effect relationship, but a complex feedback process in which the child in the effort to express imaginative possibilities as part of a game, draws on available knowledge of new forms and word structures. In so doing, he or she is further practicing the use of these forms so that the ultimate propensity for vocabulary differentiation is heightened.

Another hypotheses of this study initially was that children more likely to play imaginatively would also be less likely to be interested in television or to reflect some of the more noxious influences of that medium in their play. Data here are not especially interesting. In general, Imaginativeness of Play in the nursery shows relatively little relationship to the pattern or frequency of television-viewing. There is some relationship between degree of Concentration on TV shown by boys at home and their imaginativeness of play, but if

anything, that relationship is reversed for girls. On the whole, we see little tie between the ongoing Imaginativeness of Play and Television-viewing frequency or the content of the shows watched. If we look a little closer at the predictions from a multiple regression analysis, we do find that children who watch the Commercial Television shows oriented to children or who watch the Adult Family non-violent drama are more likely to be imaginative while those watching the more "hyped-up" Variety or Game shows are less likely to be imaginative. The imaginative children are, however, also more likely to be Cartoon watchers. In the case of girls, there is contribution to the multiple regression prediction of Imaginativeness of Play made by watching of situation-comedy and a negative relationship is found between Weekend Television-Watching and Imaginativeness of Play. In general, therefore, the best we can say is that children who play imaginatively are somewhat more likely to be watching what might be termed the more "benign" programming, family dramas like The Waltons, situation comedies like Happy Days or I Love Lucy or The Odd Couple, comercial TV children's shows as Captain Kangaroo and do not appear to be especially watchers of the more active "hyped-up" shows such as The Gong Show or the violent detective shows. These results are, however, not tremendously impressive by any means, and the hypothesized inverse link between imaginativeness, television-viewing patterns and aggression cannot really be supported strongly from our data on ongoing play.

Of particular interest are the results of a factor analysis of the play, language, demographic, imaginative predisposition and TV variables carried out for all subjects after the February 1978 observations. The results indicate that the three orthogonal factors which describe the variance reflect 1) a happy, imaginative playful child factor with large positive loadings for

Positive Affect, Imaginative Play, Verbal Productivity, and negative loadings for Fear, Sadness and Fatigue; 2) a factor which represents more private imaginativeness as represented by imaginary playmates, fantasy play at home and Rorschach Human Movement responses as well as more socially cooperative behavior during play, with negative loadings for Aggression, Anger and the watching of the more violent Action-Adventure TV shows and 3) a factor chiefly reflecting the heavy viewing of TV along with positive loadings for Aggression and Anger during play along with loadings for socioeconomic status (Lower SES load positively) and ethnicity (Hispanic and Black load positively). These results modestly support the hypothesized link of imaginativeness to lower Aggression and Violent TV-viewing trends. They more strongly support the notion that imaginative play or private imagination is associated generally with more positive affect and more advanced language use and more socially cooperative behaviors. Our data bear comparison with almost identical factor analytic findings by Shmukler (1977) with South African white children and with the work on playfulness reported for kindergarten children by Lieberman (1977). The link of TV-viewing to aggression is comparable to data reported by Lefkowitz et al. (1977) for older children.

In conclusion it seems clear that as early as ages three and four, children are showing consistencies in play styles. There are indications that we can define a dimension of general playfulness characterized by the use of make-believe, signs of enjoyment and positive affects and an expressive and advanced use of language. Children who watch a good deal of TV and especially Action shows seem more likely to show aggressive behavior during play. Indications of private fantasy play such as imaginative companions or inner imagery are linked to more socially mature behavior, less aggression or anger and to lower levels of viewing TV, especially more violent programming.

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